2013 Southwest Louisiana National Wildlife Refuge Complex Vegetation Control Plan

LDWF, Inland Fisheries

The Southwest Louisiana National Wildlife Refuge Complex consists of four different National Wildlife Refuges directed by a single complex manager. They are Cameron Prairie, Lacassine, Sabine, and Shell Keys. These refuges are part of the United States Fish and Wildlife Refuge System established by congress in 1966 by the National Wildlife Refuge Administration Act (16 USC 668dd et seq.) which can be viewed at: http://teeic.anl.gov/lr/dsp_statute.cfm?topic=3&statute=164.

These areas are all wetland waterfowl refuges that allow fishing. The Louisiana Department of Wildlife and Fisheries (LDWF) provides fisheries technical assistance to the first three listed. Herbicide treatments are also conducted by LDWF personnel to maintain public access. A Memorandum of Understanding (MOU) was finalized in 2012 (attached) to articulate respective roles toward protection of natural resources, enhancement of fishing opportunities, and control of aquatic vegetation (Appendix I). All of these refuges suffered damage from Hurricanes Rita and Ike including significant damage to levees. Some internal levees have been repaired. Others remain damaged and allow water passage between certain impoundments. All exterior ring levees have been repaired.

Water body Information

The following information is a general description. More information is provided in Comprehensive Conservation Plans (CCP) for each refuge at the USFWS website:

Cameron Prairie:
http://www.fws.gov/southeast/planning/CCP/CameronPrairieFinalPg.html
Lacassine:
http://www.fws.gov/southeast/planning/CCP/LacassineFinalPg.html
Sabine:
http://www.fws.gov/southeast/planning/CCP/SabineFinalPg.html

Waterbody Type:
Most of the refuges consist of man-made marsh impoundments surrounded by ring levees. There are some units outside of these ring levees consisting of natural marsh ecosystems.

Parish/Location:
Cameron Parish

Date Created:
Cameron Prairie: 1988
Lacassine: 1937
Sabine: 1937

Size (surface acres):
The following acreages are the total size of the refuges:

Cameron Prairie: 9,621 (Gibbstown unit)
Lacassine: 34,724 (all units)
Sabine: 124,511

Watershed:
Cameron Prairie and Sabine NWR are both in the Calcasieu River basin, while Lacassine Pool is in the Mermentau River basin on Lacassine bayou.

Watershed Ratio: N/A.

Water Control Structures:
Description:
Each refuge has multiple water control structures not just on the exterior levee, but also in the internal levees. This gives refuges the ability to manipulate water levels in multiple areas within each refuge. See CCP for details.

Age and Condition:
Ages vary, see CCP for details.

Drawdown Potential:
Variable, see CCP for details.

Operation Procedures:
Owned and operated by the Unites States Fish and Wildlife Service (USFWS) for marsh management. LDWF provides recommendations for aquatic plant control and fisheries management openings when requested by refuge personnel. The USFWS is under no obligation to follow these recommendations. However, they do utilize our input to maximize benefits to fisheries while still accomplishing their primary waterfowl management goals.

Ownership:
United States Fish and Wildlife Service

Pool stage:
Average Depth – 2-3ft.

Stakeholders:
USFWS manages the wetlands primarily for waterfowl and other migratory bird habitat. The refuges are important recreational fishing areas for the public. Commercial fishermen (shrimpers/crabbers) are impacted by the water control structures in the saltwater zone. Oil companies retain subsurface rights in some areas and conduct exploration and drilling operations on all three refuges.
These marshes are by nature aquatic vegetation habitat. Vegetation complaints from the public are minimal because of the nature of these systems. Herbicide applications to emergent and

floating aquatic species in high use fishing areas are made through cooperative efforts between LDWF and USFWS.

Previous controversial issues on Lacassine Pool include:
In early 2000's, refuge staff concluded that conducting on site fishing tournaments was a commercial venture and not in compliance with refuge policies. Tournaments may still be held, but fish must be removed to an off-site weigh-in location.

Because it is managed for waterfowl and dependent upon rainfall, water levels in Lacassine Pool are always an issue during drought periods (1999-2000, 2010-2011). Many anglers feel the refuge does not take enough steps to keep higher water levels to facilitate access and reduce drought impacts on fisheries populations. Drilling water wells simply for the purpose of preventing natural draw-downs is cost prohibitive and not in the best interests of marsh management.
In 2009, Lacassine Pool was subdivided to facilitate more active water management, leaving as many areas open to the public as possible.

Past Control Measures:

Biological:
In fall 2012, Lacassine refuge staff utilized the department's weevil program to stock giant salvinia in infested areas of the refuge both inside and outside the pool. Forty plastic totes containing weevil-infested salvinia was stocked at that time. Weevil abundance estimates were 400 adults per tote.

Chemical:
LDWF crews work cooperatively with the refuge to treat floating aquatic plants to maximize fishing access. Since 2007, the refuge has purchased herbicides and LDWF has provided manpower, equipment, and surfactant. Additional herbicides were provided by the state when funding prevented the refuge from purchasing the needed chemicals. These efforts were concentrated on Lacassine Pool, where giant salvinia was found in 2008. The occurrence was the first documented in publicly accessible waters of LDWF District 5. LDWF initiated aggressive spray applications while infestations were small in an effort to prevent the spread of this invasive species. As per the completed MOU, the complex was to provide all chemicals applied to the refuge beginning in 2012. Due to insufficient funds, and problems with logistical support from refuge personnel, only four treatments were made on the pool, primarily for giant salvinia control. While this level of effort meets the specified LDWF application efforts as outlined in the MOU, more treatments would have been beneficial.

Table 1. Historical treatment measures on NWR Complex.

Target Plants	Herbicide	Rate (gal/acre)	Treatments per year
Water Hyacinth Alligator Weed Primrose American White Water Lily	2, 4-D	0.50	2
Common Salvinia	Glyphosate	0.75	5
Giant Salvinia	Diquat	0.75	5
	Glyphosate	0.75	
	Imazamox	0.50	

Table 2. 2012 Application details on NWR Complex

Total # of Treatments	Herbicide	Rate (gal/acre)
4	Imazapyr/Glyphosate	0.75
	Imazamox/Glyphosate	0.75

Table 3. 2012 Acres treated by vegetation on complex.

Vegetation	Acres Treated
Salvinia Giant	61
Water Hyacinth	21.2
Alligator Weed	15.6
Water Paspalum	6
Salvinia Common	6
Creeping River Grass	3
Primrose	2.6
Knotweed	2.6
Total	**118**

Physical:

In 2008, the pool unit on Lacassine where giant salvinia was discovered was drawn down to help eliminate the plant in the marsh and limit it to the surrounding canals. The drawdown was initiated in June and water was lowered approximately two feet in the pool by September. At that time, the structure was closed to prevent Lacassine Bayou from flowing into the pool. This physical treatment combined with chemical treatment in remaining water was very effective at reducing salvinia coverage because the plant was not able to find refuge in the shallow flats of the marsh. Regular spray treatments from 2009-2011 were effective in maintaining control of giant salvinia without planned drawdowns after this point.

Aquatic Vegetation Estimates:

Biomass:

Fall 2012
Water hyacinth (500 acres)
Common Salvinia (300 acres)
Alligator weed (100 acres)
Primrose (200 acres)
Giant Salvinia (100 acres)
Coontail (10,000 acres)
Hydrilla (10,000 acres)
American white water lily (5,000 acres)
Maidencane (> 100,000 acres)

Note that only the first five plants are considered potentially problematic and treated by LDWF.

Estimated for Fall 2013
Water hyacinth (700 acres)
Common Salvinia (400 acres)
Alligator weed (100-300 acres)
Primrose (300-500 acres)
Giant Salvinia (400 acres)
Coontail (10,000 acres)
Hydrilla (10,000 acres)
American white water lily (5,000-6,000 acres)
Maidencane (> 100,000 acres)

Limitations:

1. Management authority resides with the USFWS.
2. By definition, these marshes are aquatic vegetation habitat and are managed to provide maximum aquatic vegetation species that are beneficial to waterfowl.
3. Chemicals are restricted to those approved by USFWS for use on refuges.
4. Areas are managed primarily for waterfowl.

Recommendations:

Biological Control

Work with complex personnel to continue new giant salvinia weevil introductions and to develop a weevil relocation plan which would utilize complex employees to relocate weevil-infested giant salvinia to non-infested salvinia on a monthly basis.

Chemical Control

Following MOU agreement, continue spraying operations for emergent and floating aquatic plants, concentrating on keeping high public use areas open for fishing. This will entail three to five treatments of a mix of glyphosate (0.75 gal/acre) and diquat (0.25 gal/acre) with Aqua King Plus (0.25 gal/acre) and Thoroughbred (8 oz/acre) surfactants to target giant and common salvinia. If infestations are primarily primrose and alligator weed, Imazapyr will be used at 0.5 gal/acre with Inergy surfactant (0.25 gal/acre). Infestations consisting of primarily water hyacinth will be treated with 2,4-D at 0.5 gal/acre. Chemicals used for treatments will be based on what is provided by the refuge, and will be dependent upon USFWS funding availability.

Physical Control

Communicate monthly with refuge personnel regarding approximate salvinia coverage, and assess coverage during spray treatments. Recommend drawdowns to complex managers if giant salvinia coverage reaches 50% of any individual pool unit. Drawdown specifics will be dependent on USFWS marsh management needs.

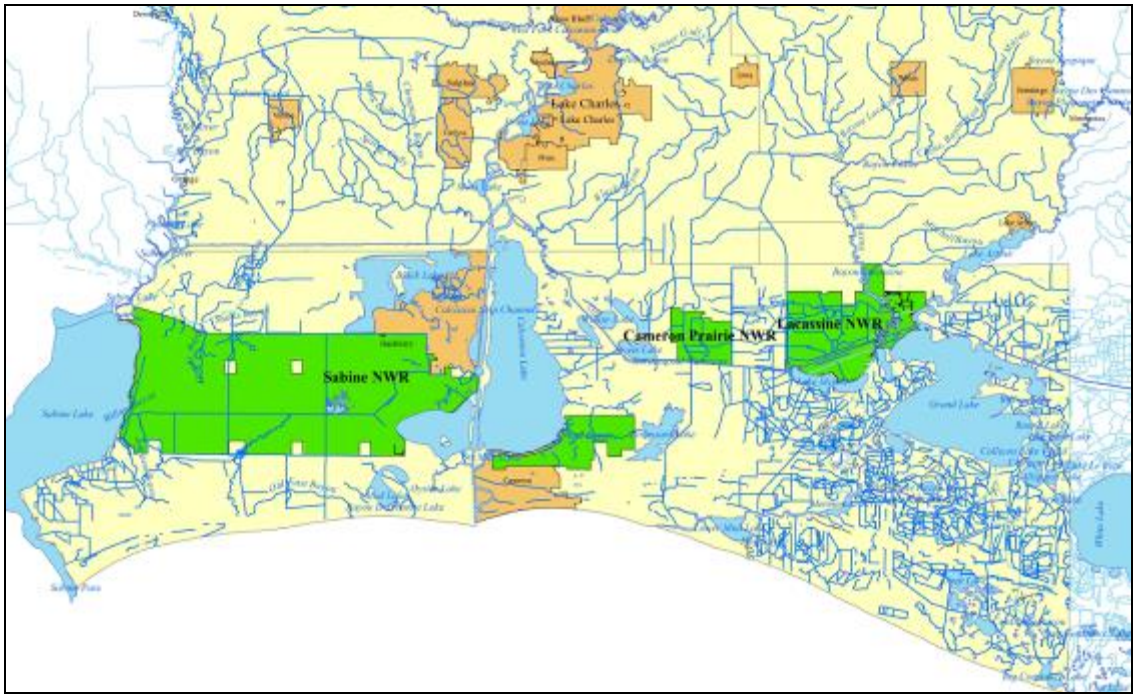

Figure 1. Map of Southwest Louisiana National Wildlife Refuge Complex

APPENDIX I

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MEMORANDUM OF AGREEMENT
UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE
And
THE LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

I. PARTICIPANTS

THIS MEMORANDUM OF AGREEMENT (MOA) is entered into by and between the UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE (USFWS), acting through, the Project Leader of the Southwest Louisiana National Wildlife Refuge Complex which includes Cameron Prairie, Lacassine, Sabine and Shell Keys National Wildlife Refuges (Complex), and the Louisiana Department of Wildlife and Fisheries (LDWF) acting through the Louisiana Department of Wildlife and Fisheries Section Biologist Manager for Southwest Louisiana, collectively the (Parties).

II. RECITALS/ BACKGROUND

The USFWS has established the Complex to protect, restore, enhance, and manage a representative portion of freshwater and associated southwest Louisiana habitats for the benefit of wintering waterfowl, other migratory birds, threatened and endangered species, and provide for the public to participate in wildlife dependent recreation such as fishing. The USFWS has developed a habitat management program that includes controlling aquatic noxious and invasive plants. Aquatic invasive plant control efforts are recognized as an important management tool to protect the purposes for which the refuges within the Complex were established.

The Louisiana Department of Wildlife and Fisheries has responsibilities similar to the USFWS on state and private lands throughout southwest Louisiana. The LDWF also has a very active aquatic noxious and invasive plant control program within the Office of Fisheries.

It is to the benefit of both Parties to work together to fulfill their common missions, reduce operational costs, share resources and take advantage of each participant's technical expertise to address aquatic noxious and invasive plant control and fisheries management.

Therefore the Parties of this agreement will work together cooperatively to fulfill their habitat management mission in Southwest Louisiana as follows:

III. PURPOSE

The purpose of this agreement is to clearly articulate how the USFWS and the LDWF will work together to protect natural resources and enhance fishing opportunities through sport fish management and the control of aquatic invasive plants in accordance with their respective policies and authorities in Southwest Louisiana.

By signing this agreement the USFWS agrees to allow public fishing on its waters where feasible in accordance with each refuge's respective Comprehensive Conservation Plan and federal law. In exchange, LDWF agrees to provide a defined level of aquatic plant control (reference XI) on the Complex and to conduct fisheries sampling in an effort to provide technical assistance in fisheries management.

XI. PROVISIONS

The USFWS Agrees to:

Provide public access to the Complex for wildlife dependant recreation in accordance with the Comprehensive Conservation Plan and federal law.

Provide herbicides and surfactants to be applied by LDWF to infested areas of the Complex.

Submit herbicide application requests, when necessary, to LDWF at least 7 days prior to the requested date of application on the specified water.

Provide technical expertise to LDWF in regards to herbicide applications, research, or investigations on Complex water bodies.

Provide reasonable assistance, necessary equipment, storage space and personnel in extenuating circumstances to help fulfill the treatment mission.

Support LDWF's initiatives associated with this MOA and publicly recognize them for their cooperative efforts.

Permit and assist LDWF in stocking largemouth bass in Lacassine Pool as the Parties determine is appropriate and in accordance with the Parties fish stocking procedures. Other species and locations within the Complex may be stocked at the agreement of the Parties for recovery efforts, outreach events, and/or general sport-fish enhancement.

Hold LDWF harmless for damages that may occur to off-target vegetation as a result of spraying applications on the Complex when such applications were performed in accordance with approved application techniques.

The LDWF Agrees to:

Provide personnel and equipment for a minimum of 40 crew hours to treat the Complex with herbicides provided by the USFWS.

Make reasonable efforts to conduct applications on or before requested application date, and provide notice to the Complex manager at least 7 days prior to applications initiated by LDWF.

Make reasonable efforts to prevent off-target damages to the vegetation on the Complex. However, minor damages such as yellowing of non-targeted plants may occur.

Provide daily report logs to Complex personnel after each application by means of USFWS Pesticide Usage Reporting Form.

Sample within the Complex to aid in the management of the fisheries resources within the Complex in accordance with each station's approved Comprehensive Conservation Plan or Step-down Management plans, and U S Fish and Wildlife Service Policies.

Stock Lacassine Pool as the Parties determine is appropriate and in accordance with the Parties fish stocking procedures. Other species and locations within the Complex may be stocked at the

IN WITNESS WHEREOF, the parties have caused this MOA to be executed by an authorized official on the date and year set forth below their signature

U S Fish and Wildlife Service

Donald J Vorse 7/20/2012

Project Leader, Southwest Louisiana
National Wildlife Refuge Complex

Louisiana Department of Wildlife and Fisheries

7.9.12

Randy Pausina, Assistant Secretary
Office of Fisheries

Robert J. Barham, Secretary